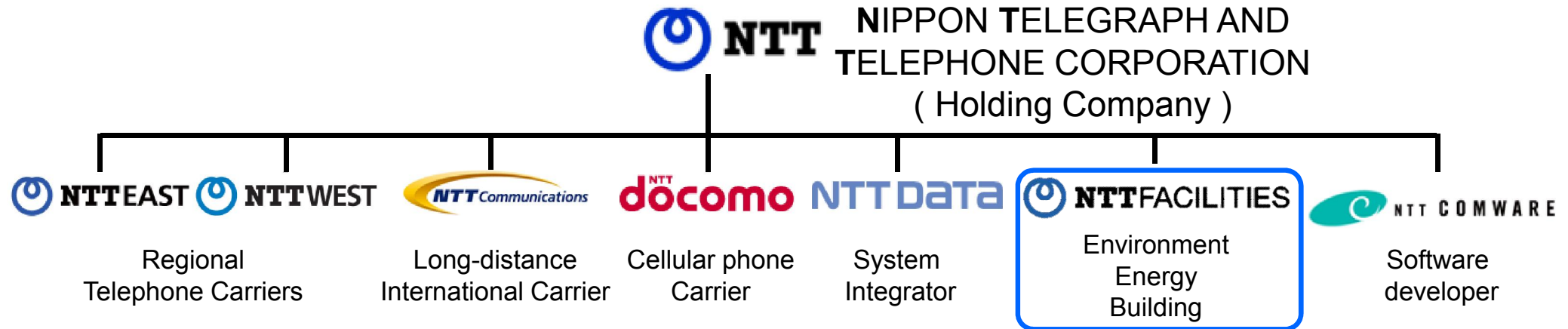


Energy Saving for Industrial Park with Smart LED Street Lighting System



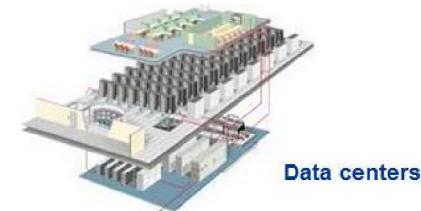
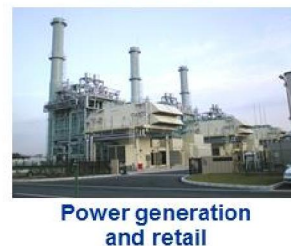
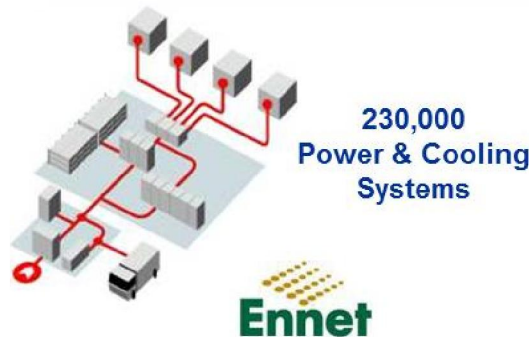
KIIC

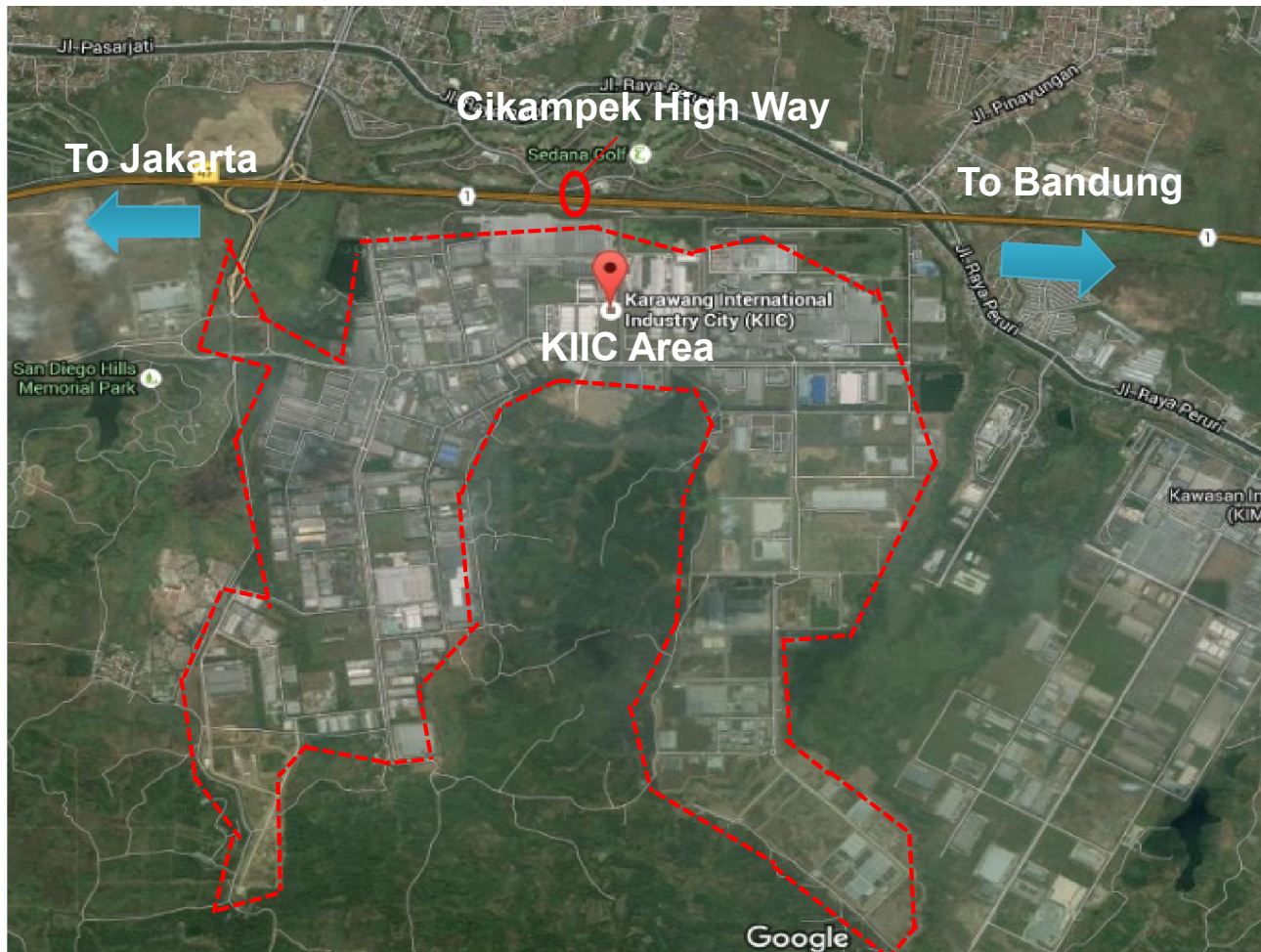
 **NTTFACILITIES**



NTT FACILITIES provides Energy-Architecture-ICT combined services

Est. : December 1, 1992
Employees: 5,000
Revenue : 276 billion JPY





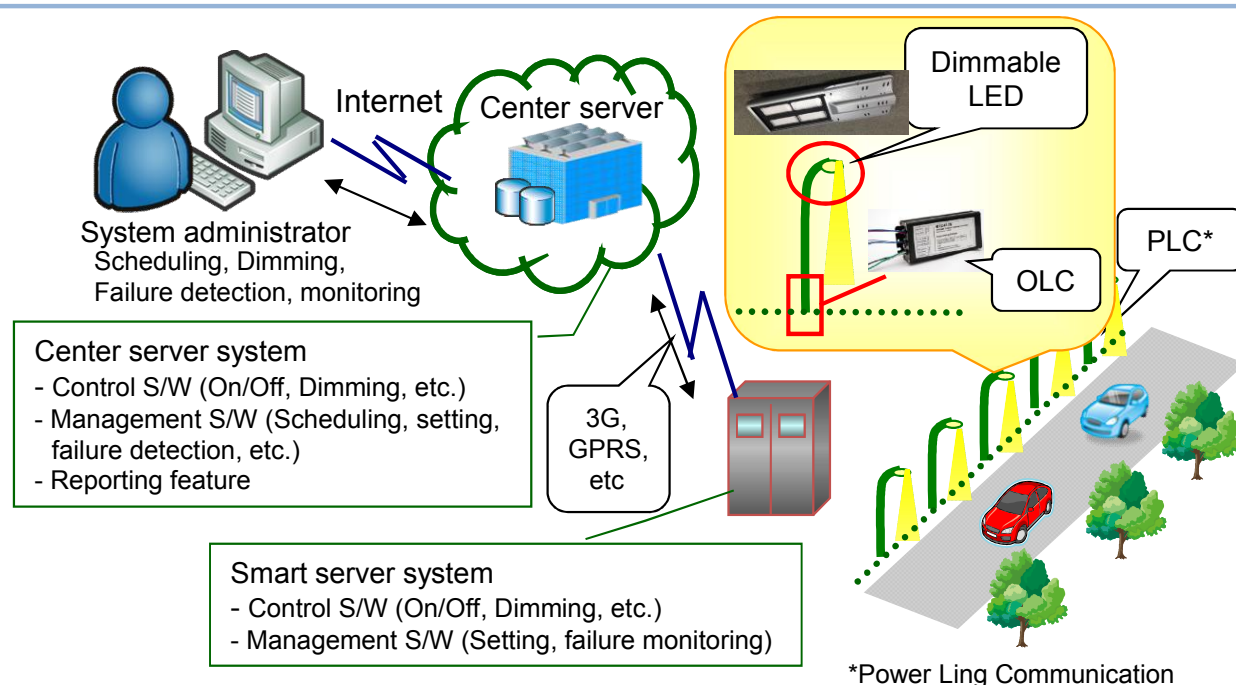
- Safe Management and Infrastructure by investment of ITOCHU and Sinarmas
- Good location(close to highway)
- Total area around 1,200 ha + a(still expanding)
- **High awareness of CSR** and Community
- **Biodiversity Park** certificate
- Well-managed Operation and Security team

Outline of GHG Mitigation Activity

The project aims to reduce electricity consumption in the industrial park through introducing advanced & efficient Japanese intelligent street lighting system with LED.

The project reduces GHG emissions by following measures:

- Replacement of existing street lights with high efficient LED lights
- Introduction of intelligent systems to control modulate light by luminance of surrounding environments

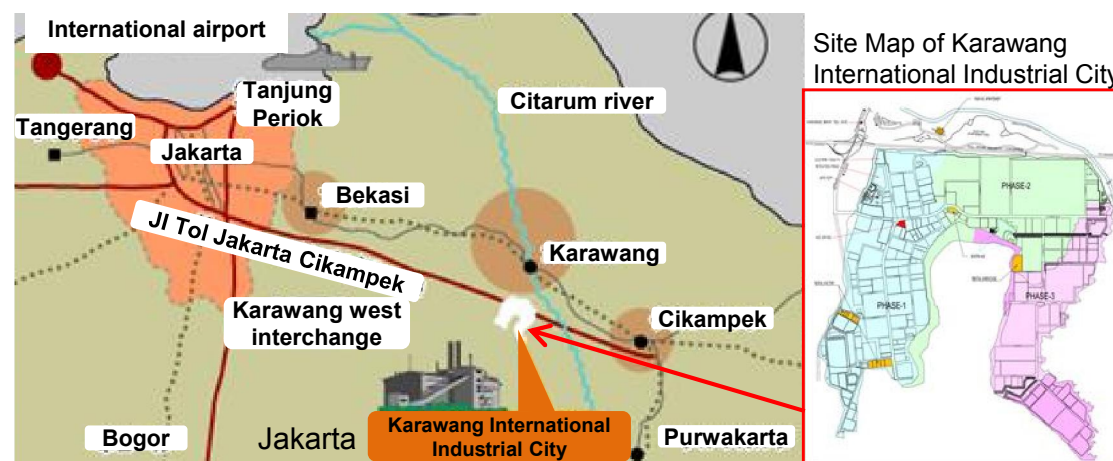


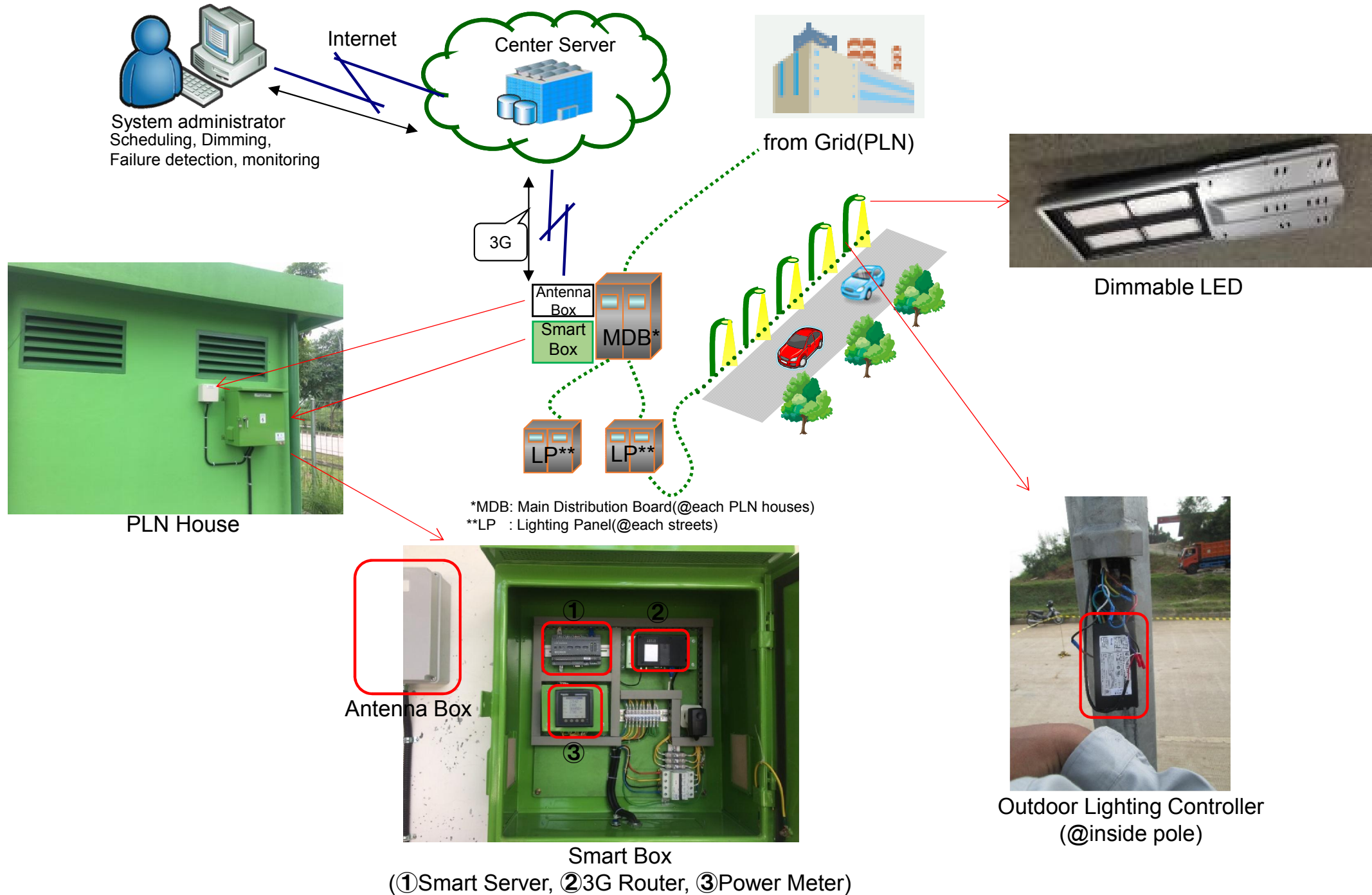
Expected GHG Emission Reductions

Appox. 500tCO₂/year

The GHG emission reductions are calculated based on the estimated electricity consumptions based on a conservatively estimated luminous efficiency of a reference lighting equipment and that of project LED as well as the grid emission factor.

Sites of JCM Model Project





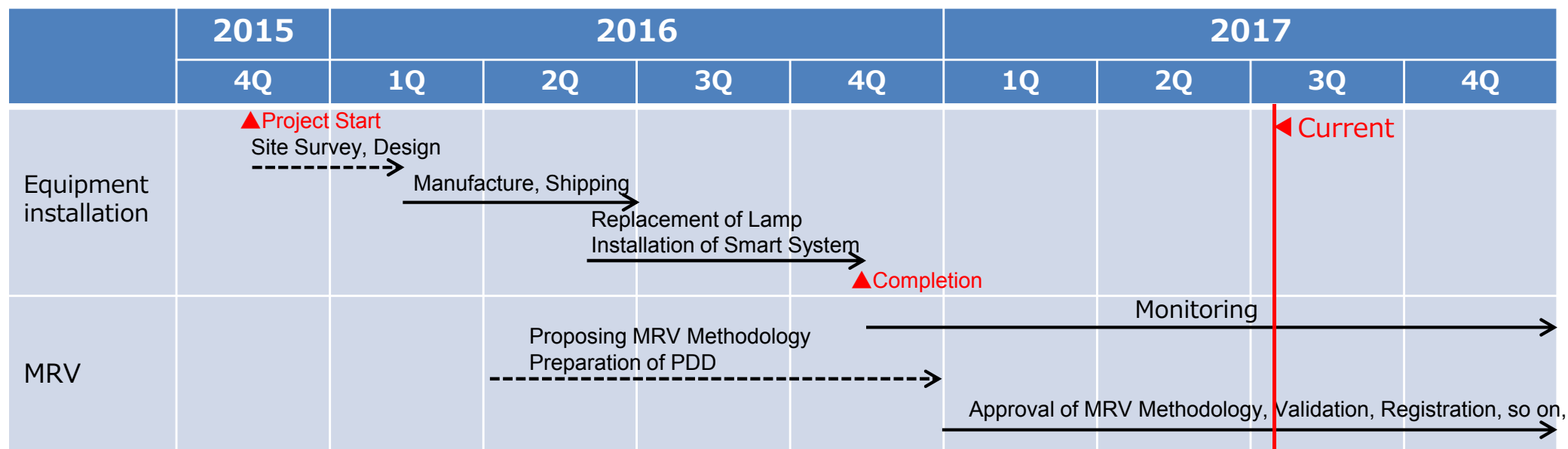
Scope

70% Energy Saving





Dimmable High Efficient LED: 95W x 660pcs, 190W x 600pcs
Smart Lighting System : 14 Smart Boxes, 1,260 OLCs(Outdoor Lighting Controllers)

Schedule



- 1 Dimmable illuminance (0-100%)
- 2 High Efficiency and Brightness (20,800lm,190W)
- 3 Safety and Durability (Fall prevention, Waterproofing module, Aluminum die casting)

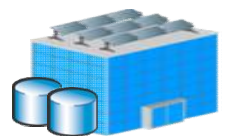
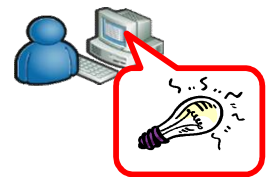
Specification Comparison

	PHILIPS	STANLEY
Product image		
Optical Spec.		
Luminaire efficacy	102 lm/W	109 lm/W ○
Lens variation	Medium, Wide, Narrow	Medium, Wide, Narrow
Environmental durability		
Input voltage	AV 100 to 277 V	AC 90 to 305 V ○
Surge protection	10 KV	20 KV ○
Life time	50,000h	50,000h
Weight	8 Kg ○	11 Kg

STANLEY Product has advantage about

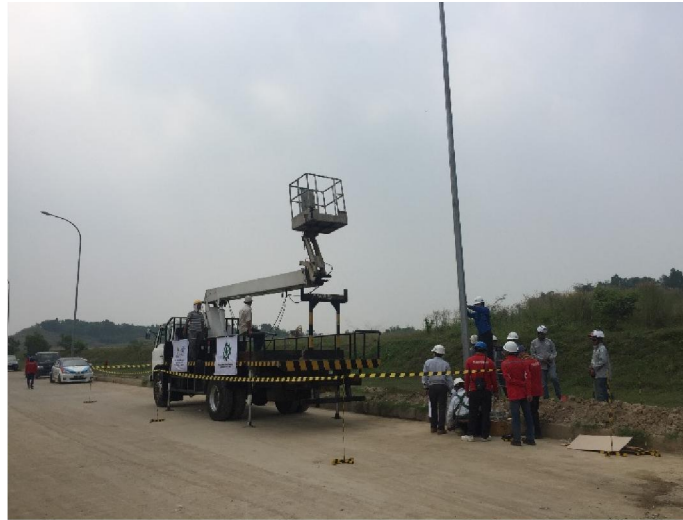
- 1) Better luminous efficacy = More power saving by core LED technology for car headlights
- 2) Wide input voltage = More stable against voltage fluctuation
- 3) Higher surge protection = Higher environmental durability

- **Power line communication technology**
 - The protocol and key signaling technologies as global standard. ISO/IEC 14908.
- **Remote controlling**
 - Real time, remote lamp INDIVIDUAL On/Off and dimming through the internet and electronic map like Google Map.
- **Remote monitoring**
 - Remote monitoring features of INDIVIDUAL lamps to improve maintenance efficiency.
 - Remote energy measurement (Energy consumption, Current value, Voltage value measurement, etc.)
 - Lamp failure detection
 - Lamp lifetime measurement
 - Alarm feature (on email) to detect lamp, ballast and power line failure (electric leak, electric cable damage etc.)
- **Cloud based service**
 - No application installation required
 - Can be monitored and controlled using browser on internet enabled PC





Safety Activity



Setting Lifter



Installation of Smart box



Lamp replacement



OLC installation



After replacement



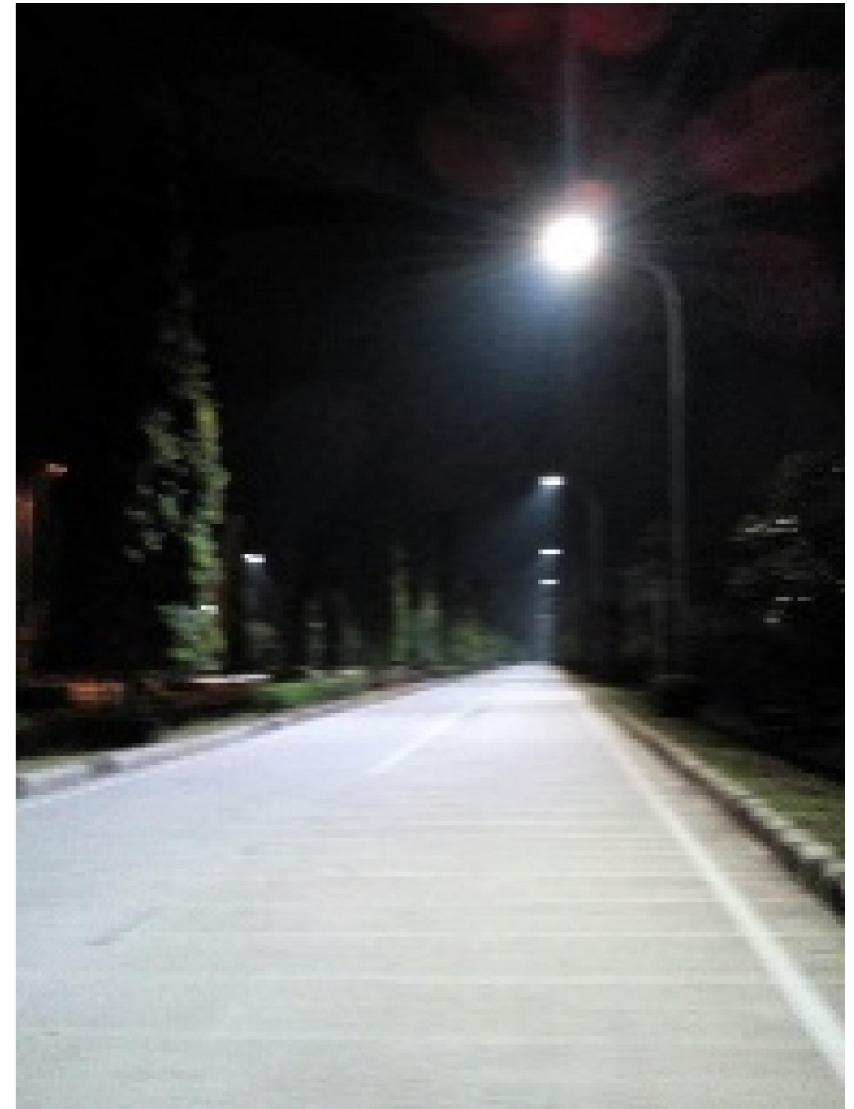
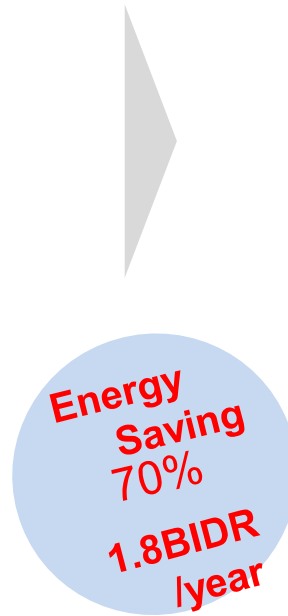
Smart Box

Challenges in Implementation

- Confirmation of existing conditions(number of lamp, power line diagram, noise caused by other usage in power line, etc.)
- Smart Box installation in Tenant area, PLN house(coordination)



Before
(High Pressure Sodium 400W)



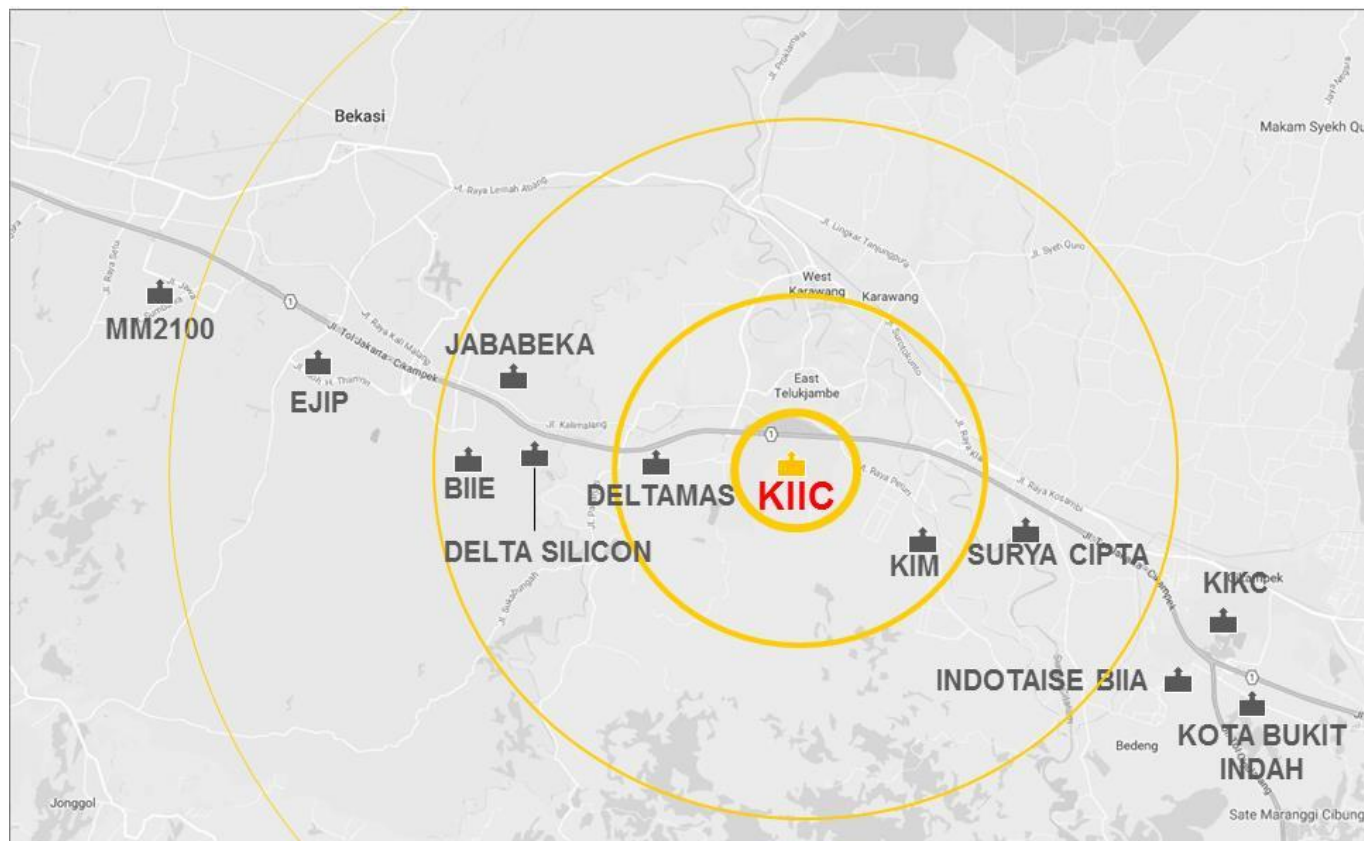
After
(LED 190W)

Viewpoint of technology replication

Adoption of LED as street lighting is increasing, however dimming or monitoring function using PLC is not known well yet. More promotion activities are required.

Expansion to other Industrial parks

We hope this smart and green activity expands to other industrial parks, and becomes greater light which illuminates sustainable future.





Terima kasih atas perhatian Anda.

Our goal is to provide reliable
environmentally-friendly integrated facilities service,
as your most trusted partner